Transportation Firm Simplifies Data Center Management

PITT OHIO adopts Data Center Business Advantage for streamlining its virtual environment.

EXECUTIVE SUMMARY
PITT OHIO
• Industry: Transportation
• Location: Pittsburgh, Pennsylvania, USA
CHALLENGE
• Reduce time and resources for server backups and restorations
• Establish an integrated foundation for continued virtualization of infrastructure
• Increase sustainability by developing green strategies for data center management
SOLUTION
• Integrated computing system designed for virtualization
• High-performance switch at the heart of the data center
RESULTS
• Backups and restorations take minutes, not hours
• Simplified management
• Reduced cabling, interface, and energy costs

Challenge

PITT OHIO is always there for its customers. The company provides highly reliable supply chain, ground, less-than-truckload, and truckload services. Headquartered in Pittsburgh, Pennsylvania, PITT OHIO delivers services through 21 terminals across the U.S. Mid-Atlantic and Midwest regions and serves North America through the Reliance Network.

The company's commitment to outstanding customer service is supported by a state-of-the-art information and telecommunications infrastructure. All terminals are connected to the main data center using a Cisco® WAN, from which they receive mission-critical shipping, tracking, employee, and operational applications. The data center is also based on Cisco infrastructure, and Cisco IP telephony and LAN solutions are used across the organization. As part of a planned network core refresh project, PITT OHIO was deploying a Cisco Nexus 7000 Series switch to take advantage of its 10 Gigabit Ethernet and unified fabric capabilities. At the same time, the server team was planning to update its existing server cluster environment with new servers from the incumbent server vendor. The existing server cluster is connected using Fibre Channel arrays. The replacement servers would not be able to take advantage of the 10 Gigabit Ethernet capability of the Cisco Nexus 7000 data center switch and Fibre Channel arrays.

PITT OHIO was well along in its virtualization strategy, which had enabled the company to reduce its carbon and server footprint from 35 racks of equipment to five. Jules Thomas, systems specialist, also had simplified the backup process. However, restoring a physical server or virtual machine (VM) was still time-consuming. If a server went down, Thomas would have to drive to the office, set up a new server, install the OS, install the agent, restore as much as possible, and involve the database administrator to restore database components. Depending on the size of the server, this process could take longer than a day.

When Thomas learned about the Cisco Unified Computing System solution and its role in a shared, virtualized infrastructure architecture, he realized that Cisco's Data Center Business Advantage could bring all of the pieces together.

Solution

"When we learned that the Cisco Unified Computing System could integrate everything, it quickly became apparent that it would provide us with more functionality and less risk," says Thomas. "We could immediately take advantage of 10 gigabit capacity across the entire infrastructure with full integration. Why take a chance that the other servers would not be able to deliver everything we needed?"

PITT OHIO first introduced the Cisco Unified Computing System into its virtualized data center server pool, supporting applications in a VMware ESX 4.0 environment with an eight-blade chassis and a separate cluster for its SQL database environment. It later connected an existing Storage Area Network to the system. The company now uses two Unified Computing System B-Series 5108 Blade Server Chassis and eight Unified Computing System 6620 B200 M1 Blade Servers. Virtual applications now receive all the resources they need with 20 or more VMs per server blade. When PITT OHIO completes its virtualization project, 90 percent of its servers will be virtual. The core Cisco Nexus switch, server platforms, and backup systems now operate across a fully integrated 10 gigabit fabric.

Results

"The Cisco Unified Computing System centralized and greatly simplified management," says Mike Cisek, director of infrastructure for PITT OHIO. "With a single connection our team can easily troubleshoot and remote manage everything. It has saved us hours and days of time and enabled the data center group to take a leadership role in PITT OHIO sustainability initiatives."

With the Cisco Unified Computing System, servers and VMs can be restored in a few clicks and much faster than before. Standard servers with 8 to 15 GB of data can be fully backed up in three to five minutes. VMs can be restored in anywhere from five minutes to an hour, instead of 8 to 12 hours. Full remote accessibility enables Thomas to restore a system from anywhere. When a large SQL server went down over a weekend, Thomas was able to completely restore it in 40 minutes from his home with no need to involve the database administrator.

> "The new solution has saved us hours and days of time and enabled the data center group to take a leadership role in PITT OHIO sustainability initiatives."
>
> **– Mike Cisek, Director of Infrastructure**

The Cisco Nexus switch and Cisco Unified Computing System also dramatically reduced cabling connections and the associated cost of interfaces. Server connections were reduced from 40 to 6; Fibre Channel connections dropped from 16 cables to 4. Data center space, power, and cooling requirements also dropped.

> ### PRODUCT LIST
>
> **Routing and Switching**
> - Cisco UCS B-Series: two 5108 Blade Server Chassis; six 6620 B200 M1 Blade Servers (each with dual CPUs, 48GB memory); 6120XP 20-port Fabric Interconnect Product
> - Cisco Nexus: 7010; 10Gig ports
>
> **Network Management**
> - Cisco UCS Manager

"We went from having up to 35 racks of equipment to just five," says Thomas. "The drastic reduction also reduces our power and cooling requirements. The other vendor's server solution that we originally planned to use would have needed four times the number of connections and not reduced the overall footprint."

Support time was also cut dramatically. Thomas and the rest of the team have been freed to work on new projects in what he estimates is a twenty-fold increase in productivity. Time saved is now being directed toward expanding the internal team's expertise and experience with other technologies and applications, as well as launching new initiatives.

Next Steps

PITT OHIO plans to connect more of its storage environment to the Cisco Nexus switch to offload its main server. The company is also implementing EMC Clarion with FAST technology and SSD storage for SQL I/O separation. The team also is evaluating solutions for a Virtual Desktop Initiative, which will deliver enterprise assets to employees across the organization easily and cost-effectively. Its new Data Center Business Advantage solutions will keep PITT OHIO responsive and available for a long time to come.

For More Information

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